Comparing two numbers A and B

**Method 1: Absolute**

\[ B - A \quad \text{cancer deaths in} \quad 1986 - 1970 \]
\[ 462,000 - 331,000 = \quad 131,000 \]
131,000 more deaths in 1986 than in 1970

\[ A - B \quad \text{cancer deaths in} \quad 1970 - 1986 \]
\[ 331,000 - 462,000 = \quad -131,000 \]
131,000 fewer cancer deaths in 1970 than 1986

**Method 2: Relative**

Note: sig figs = same as given

How much bigger or smaller is B than A?
\[ \frac{B - A}{A} \times 100\% \]
\[ = 100 \times \left( \frac{462,000 - 331,000}{331,000} \right) = 39.6\% \]

The # of US cancer deaths in 1986 was 40% bigger than the corresponding # in 1970.

How much bigger or smaller is A than B?
\[ \frac{A - B}{B} \times 100\% \]
\[ = 100 \times \left( \frac{331,000 - 462,000}{462,000} \right) = 28\% \]

... 1970 28% smaller than 1986

Explain how the # of people dying of cancer could inc. even if treatment improving:
- Maybe improved attributing cancer to cause death
- Maybe total US population grew, probably not

What would be a better variable to measure effectiveness of treatment?
- 5 yr survival rate from diagnosis
Volume is a good variable to look at.

\[ \text{cone } \text{vol} = \frac{1}{3} \pi r^2 h \]

\[ a = \pi r^2 \]

\[ V = \pi r^2 h \]